~~successive transmissions of pulses onto the workpiece,~~];

allowing energy to be emitted from the laser source during each of said the first emission periods [~~period, and~~];

causing the laser source to process the target material on the workpiece at the first time interval between pulses [~~, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as present regardless of the time interval, without selection of the time interval affecting the pulse shape~~]

selecting a second time interval between at least two successive transmissions of pulses onto the workpiece, wherein said second time interval is different than said first time interval;

pulsing the pulsed laser system by triggering storage of energy by the laser source for the first period of time prior to each of a plurality of second emission periods associated with said second time interval, wherein said second emission periods are different than said first emission periods;

allowing energy to be emitted from the laser source during each of the second emission periods; and

causing the laser source to process the target material on the workpiece at the second time interval between pulses.

41. (herein amended): The method of claim 40 wherein the pulses each have a first [~~pre-selected~~] pulse shape [~~is~~] that includes a pre-selected pulse width, a pre-selected pulse energy or a pre-selected pulse power.

42. (herein amended): The method of claim 40 wherein the method further includes the

step of diverting unwanted energy away from the workpiece [~~pre-selected pulse shape is a pre-selected pulse energy~~].

43. (herein amended): The method of claim [~~40~~] 42 wherein the unwanted energy includes secondary pulses [~~pre-selected pulse shape is a pre-selected peak pulse power~~].

44. (herein amended): The method of claim 40 wherein the step of causing the laser source to process the target material on the workpiece at the second time interval between pulses involves [~~pulsing the pulsed laser system comprises~~] micromachining a semiconductor circuit on a silicon substrate.

45. (previously presented): The method of claim 40 wherein the target material is a thick-film electrical element.

46. (previously presented): The method of claim 40 wherein the target material is a thin-film electrical element.

47. (previously presented): The method of claim 40 wherein the target material is a resistor.

48. (previously presented): The method of claim 40 wherein the target material is a capacitor.

49. (previously presented): The method of claim 40 wherein the target material is a conductive link.

50. (herein amended): The method of claim 40 wherein the step of selecting a first [~~presetting the pre-selected~~] pulse shape is performed [~~with a by computer control~~] automatically.

51. (herein amended): The method of claim 40 wherein the step of selecting a first [~~pre-selected repetition rate~~] time interval is selected [~~by computer control~~] automatically.

52. (previously presented): The method of claim 40 wherein the laser source comprises a laser pump and a laser rod, and the pulsed laser system comprises a switch that, when closed in an on state, causes energy from the laser pump to be stored in the laser and that, when opened in an off state, allows energy to be emitted from the laser rod during an emission period.

53. (previously presented): The method of claim 52 wherein:

the pulsed laser system further comprises a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod, and an output reflector through which energy is emitted from the laser rod; and

the switch is interposed between the laser rod and the output reflector.

54. (herein amended): The method of claim [~~40~~] 53 wherein the pulsed laser system further includes an acousto-optic modulator to divert unwanted energy away from the workpiece [~~step of pulsing the pulsed laser system comprises preventing a secondary laser emission from~~

~~impinging on the workpiece after allowing a primary pulse to impinge on the workpiece~~].

55. (herein further amended): A method of operating a processor-controlled pulsed laser system comprising laser source, said method comprising the steps of:

[~~wherein~~] selecting a [~~pre-selected~~] first time interval between at least two successive transmissions of pulses onto a workpiece [~~is presettable~~] based on known properties of a target material to be processed on the workpiece [~~, and~~];

selecting a first pulse shape to be produced by the laser source [~~is selectable independently of the pre-selected time interval, the method comprising:~~];

pulsing the pulsed laser system [~~, with the pulse shape selected independently of the pre-selected time interval,~~] by triggering storage of energy by the laser source for a period of time prior to each of a plurality of first emission periods associated with said first time interval [~~that is fixed and predetermined for the selected pulse shape regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece,~~];

allowing energy to be emitted from the laser source during each of said first emission periods [~~period, and~~];

causing the laser source to process the target material on the workpiece with pulses having said first pulse shape ~~at said first time interval~~ [~~, while the pre-selected time interval remains as preset regardless of the pulse shape, without selection of the pulse shape affecting the time interval~~];

selecting a second time interval between at least two successive transmissions of pulses onto a workpiece, wherein said second time interval is different than said first time interval;

pulsing the pulsed laser system by triggering storage of energy by the laser source for a

period of time prior to each of a plurality of second emission periods associated with said second time interval, wherein said second emission periods are different than said first emission periods;

allowing energy to be emitted from the laser source during each of said second emission periods;

causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at the second time interval.

56. (herein amended): The method of claim 55 wherein the [~~pre-selected~~] first pulse shape [~~is a pre-selected~~] has a defined pulse width.

57. (herein amended): The method of claim 55 wherein the [~~pre-selected~~] first pulse shape [~~is a pre-Selected~~] has a defined pulse energy.

58. (herein amended): The method of claim 55 wherein the [~~pre-selected~~] first pulse shape [~~is a pre-selected~~] has a defined peak pulse power.

59. (herein amended): The method of claim 55 wherein the step of [~~operating the pulsed laser system~~] causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at the second time interval comprises micromachining a semiconductor circuit on a silicon substrate.

60. (previously presented): The method of claim 55 wherein the target material is a thick-film electrical element.

61. (previously presented): The method of claim 55 wherein the target material is a thin-film electrical element.

62. (previously presented): The method of claim 55 wherein the target material is a resistor.

63. (previously presented): The method of claim 55 wherein the target material is a capacitor.

64. (previously presented): The method of claim 55 wherein the target material is a conductive link.

65. (herein amended): The method of claim 55 wherein the step of [~~presetting~~] selecting the [~~pre-selected~~] first pulse shape is performed [~~by computer control~~] automatically.

66. (herein amended): The method of claim 55 wherein the [~~pre-selected repetition rate~~] step of selecting the first time interval is [~~selected by computer control~~] performed automatically.

67. (previously presented): The method of claim 55 wherein the laser source comprises a laser pump and a laser rod, and the pulsed laser system comprises a switch that, when closed in an on state, causes energy from the laser pump to be stored in the laser and that, when opened in an off state, allows energy to be emitted from the laser rod during an emission period.

68. (previously presented): The method of claim 67 wherein: the pulsed laser system further comprises a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod, and an output reflector through which energy is emitted from the laser rod; and the switch is interposed between the laser rod and the output reflector.

69. (herein amended): The method of claim 55 wherein the step of [~~operating the pulsed laser system~~] causing the laser source to process the target material on the workpiece with pulse having the first pulse shape at the second time interval comprises preventing a secondary laser emission from impinging on a workpiece after allowing a primary pulse to impinge on the workpiece.

70. (herein amended): The method of claim [~~40~~] 55 wherein the target material is a trimmable component and the step of selecting a [~~repetition rate~~] second time interval between at least two successive transmissions of pulses is performed dynamically during trimming of the trimmable component so as to permit the trimmable component to be measured accurately during trimming of the trimmable component.

71. (herein amended): The method of claim [~~70~~] 55 wherein the step of [~~presetting a pre-selected~~] selecting the first pulse shape is performed so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating.

72. (herein amended): The method of claim [~~40~~] 55 wherein the step of causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at the second time interval involves diverting unwanted laser energy away from the target material [~~target material is a trimmable component and the step of presetting a pre-selected pulse shape is performed so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating~~].

73. (herein amended): The method of claim 55 wherein the step of causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at the second time interval involves the use of an acousto-optic modulator [~~target material is a trimmable component and the step of presetting a pre-selected repetition rate is performed so as to permit the trimmable component to be measured accurately during trimming of the trimmable component~~].

74. (herein amended): The method of claim 73 wherein the step of causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at the second time interval involves diverting secondary pulses away from the target material [~~step of selecting a pulse shape is performed dynamically during trimming of the trimmable component so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating~~].

75. (herein amended): The method of claim 55 wherein the step of causing the laser source to process the target material on the workpiece with pulses having the first pulse shape at

the second time interval involves diverting primary pulses toward the target material [~~target material is a trimmable component and the step of selecting a pulse shape is performed dynamically during trimming of the trimmable component so as to allow the trimmable component to be cut all the way through the trimmable component without undue heating~~].

76. (herein amended): The method of claim [~~40~~] 55 wherein the step of selecting the first time interval is performed in a manner such that pulses are produced by the laser source at a maximum repetition rate of the laser system.

77. (previously presented): The method of claim 76 wherein the maximum repetition rate is about 50 kilohertz.

78. (herein amended): The method of claim [~~40~~] 55 wherein the pulsed laser system is pumped at constant power [~~regardless of the time interval~~] for the first emission periods and for the second emission periods [~~between the at least two successive transmissions of pulses onto the workpiece~~].

Cancel claims 79 - 85.

86. (currently further amended): A method of operating a processor-controlled pulsed laser system comprising a laser source continuously pumped at constant power, said method comprising the steps of:

[~~wherein~~] selecting a [~~pre-selected~~] first pulse energy [~~shape~~] to be produced by the laser sources [~~is presettable~~] based on known properties of a target material to be processed on a

workpiece [~~, and~~];

selecting a first [~~a~~] time interval between at least two successive transmissions of pulses onto the workpiece [~~is selectable independently of the pre-selected pulse shape, the method comprising:~~];

pulsing the pulsed laser system, while the laser source is continuously pumped at a first constant power, by triggering storage of energy by the laser source for a period of time prior to each of a plurality of first emission periods[~~, and~~];

causing the laser source to process the target material on the workpiece at the first time interval with the first pulse energy [~~, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as preset regardless of the time interval, without selection of the time interval affecting the pulse shape~~];

selecting a second time interval between at least two successive transmissions of pulses onto the workpiece, wherein said second time interval is different than said first time interval;

pulsing the pulsed laser system, while the laser source is continuously pumped at the first constant power, by triggering storage of energy by the laser source for a period of time prior to each of a plurality of second emission periods associated with the second time interval; and

causing the laser source to process the target material on the workpiece at the second time interval with the first pulse energy.

Cancel claims 87 - 93

94. (previously withdrawn) A pulsed laser system comprising:

a laser pump;

a laser rod;

a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod;

an output reflector through which energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to be closed to cause energy to be stored in the laser rod for a desired period of time, and to be opened to allow energy to be emitted from the laser rod during an emission period; and

a processor programmed to allow presetting of a pre-selected pulse shape to be produced by the laser source, based on known properties of a target material to be processed on a workpiece, to allow setting, independently of the pre-selected pulse shape, of a time interval between at least two successive transmissions of pulses onto the workpiece, and to cause the pulsed laser system to be pulsed, by causing the switch to be closed for a fixed, predetermined period of time prior to each emission period regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, so as to cause the laser source to process the target material on the workpiece, with the set time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as preset regardless of the time interval, without setting of the time interval affecting the pulse shape.

95. (previously withdrawn) A pulsed laser system comprising:

a laser pump;

a laser rod;

a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod;

an output reflector through which energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to be closed to cause energy to be stored in the laser rod for a desired period of time, and to be opened to

allow energy to be emitted from the laser rod during an emission period; and

a processor programmed to allow presetting of a pre-selected time interval between at least two successive transmissions of pulses onto a workpiece, based on known properties of a target material to be processed on a workpiece, to allow setting, independently of the pre-selected time interval, of a pulse shape to be produced by the laser source, and to cause the pulsed laser system to be pulsed, with the pulse shape set independently of the pre-selected time interval, by causing the switch to be closed for a period of time prior to each emission period that is fixed and predetermined for the set pulse shape regardless of the time interval between the at least two successive transmissions of pulses onto the workpiece, so as to cause the laser source to process the target material on the workpiece, while the pre-selected time interval remains as preset regardless of the pulse shape, without setting of the pulse shape affecting the time interval.

96. (previously withdrawn) A pulsed laser system comprising:

a laser pump that is operatable continuously at constant power;

a laser rod;

a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod;

an output reflector through which energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to be closed to cause energy to be stored in the laser rod for a desired period of time, and to be opened to allow energy to be emitted from the laser rod during an emission period; and

a processor programmed to allow presetting of a pre-selected pulse shape to be produced by the laser source, based on known properties of a target material to be processed on a workpiece, to allow setting, independently of the pre-selected pulse shape, of a time interval between at least two successive transmissions of pulses onto the workpiece, and to cause the pulsed laser system to be pulsed, while the laser source is continuously pumped at constant power, so as to cause the laser source to process the target material on the workpiece, with the set

time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse shape remains as preset regardless of the time interval, without setting of the time interval affecting the pulse shape.

97. (previously withdrawn) A pulsed laser system comprising:

a laser pump that is operatable continuously at constant power;

a laser rod;

a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod;

an output reflector through which energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to be closed to cause energy to be stored in the laser rod for a desired period of time, and to be opened to allow energy to be emitted from the laser rod during an emission period; and

a processor programmed to allow presetting of a pre-selected time interval between at least two successive transmissions of pulses onto a workpiece, based on known properties of a target material to be processed on a workpiece, to allow setting, independently of the pre-selected time interval, of a pulse shape to be produced by the laser source, and to cause the pulsed laser system to be pulsed, while the laser source is continuously pumped at constant power, with the pulse shape set independently of the pre-selected time interval, so as to cause the laser source to process the target material on the workpiece, while the pre-selected time interval remains as preset regardless of the pulse shape, without setting of the pulse shape affecting the time interval.

98. (currently amended): A method of operating a processor-controlled pulsed laser system comprising a laser source and having programmable pulse energy characteristics, wherein a [~~pre-selected~~] first pulse energy characteristic to be produced by the laser source is presettable based on known properties of a trimmable component to be micro-machined on a workpiece, and a first time interval between at least two successive transmissions of pulses onto the workpiece is

dynamically selectable independently of the pre-selected pulse energy characteristic, during trimming of the trimmable component, so as to permit the trimmable component to be measured accurately during trimming of the trimmable component, the method comprising:

pulsing the pulsed laser system, by triggering storage of energy by the laser source for a first predetermined period of time prior to each of a plurality of first emission periods associated with said first time interval; [~~, and~~]

causing the laser source to micro-machine the trimmable component on the workpiece, with the [~~selected~~] first time interval between the at least two successive transmissions of pulses onto the workpiece [~~, while the pre-selected~~] the pulses having the first pulse energy characteristic [~~remains as preset regardless of the time interval, without selection of the time interval affecting the pulse energy characteristic~~];

selecting a second time interval between at least two successive transmissions of pulses onto the workpiece, wherein said second time interval is different than said first time interval;

pulsing the pulsed laser system by triggering storage of energy by the laser source for the first predetermined period of time prior to each of a plurality of second emission periods associated with the second time interval; and

causing the laser source to process the target material on the workpiece with pulses having the second time interval and having the first energy characteristic.

99. (herein amended): The method of claim 98 wherein the trimmable component is a resistor and the first pulse energy characteristic is a pulse energy [~~is~~] of about 200-300 microjoules.

100. (previously presented): The method of claim 99 wherein resistor comprises a low ohm material and the pulse energy is about 300 microjoules.

101. (herein amended): The method of claim 98 wherein the [~~selected~~] second time interval between two successive transmission of pulses to the trimmable component is [~~in a range of~~] about 1 millisecond (1 kilohertz) during measurement and the first time interval is about 20 microseconds (50 kilohertz) during high-speed trimming prior to measurement.

102. (herein amended): The method of claim 98 wherein the first energy characteristic is a pulse width of about 125 nanoseconds.

103. (herein amended): The method of claim 98 wherein the first energy characteristic is a pulse width in the range of about 70 nanoseconds to 125 nanoseconds.

104. (herein amended): The method of claim 98 wherein the first energy characteristic is a pulse width long enough that the trimmable component is cut through to the bottom of the trimmable component while substantial lateral heat conduction is avoided, whereby microcracking is avoided.

105. (previously presented): The method of claim 98 wherein the laser source is a continuously pumped laser source and wherein the laser system comprises a switch configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period.

106. (previously presented): The method of claim 98 wherein the laser source is diode pumped.

107. (previously withdrawn) A pulsed laser system having programmable pulse energy characteristics, comprising:

a laser pump;

a laser rod;

a reflector interposed between the laser pump and the laser rod, through which energy from the laser pump enters the laser rod;

an output reflector through which energy is emitted from the laser rod; a switch interposed between the laser rod and the output reflector configured to be closed to cause energy to be stored in the laser rod for a desired period of time, and to be opened to allow energy to be emitted from the laser rod during an emission period; and

a processor programmed to allow presetting of a pre-selected pulse energy characteristic to be produced by the laser source, based on known properties of a trimmable component to be micro-machined on a workpiece, to allow dynamic selecting, independently of the pre-selected pulse energy characteristic, during trimming of the trimmable component, of a time interval between at least two successive transmissions of pulses onto the workpiece, so as to permit the trimmable component to be measured accurately during trimming of the trimmable component, and to cause the pulsed laser system to be pulsed, so as to cause the laser source to micro-machine the trimmable component on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse energy characteristic remains as preset regardless of the time interval, without selection of the time interval affecting the pulse energy characteristic.

108. (previously withdrawn) The pulsed laser system of claim 107 wherein the laser source is a continuously pumped laser source and wherein the laser system comprises a switch

configured to be closed to cause energy to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period.

109. (previously withdrawn) A trimmed component micromachined in accordance with a method of operating a pulsed laser system comprising a laser source and having programmable pulse energy characteristics, the method comprising:

presetting, through use of a processor, a pre-selected pulse energy characteristic to be produced by the laser source, based on known properties of a trimmable component to be micro-machined on a workpiece;

dynamically selecting, through use of a processor, independently of the pre-selected pulse energy characteristic, during trimming of the trimmable component, a time interval between at least two successive transmissions of pulses onto the workpiece, so as to permit the trimmable component to be measured accurately during trimming of the trimmable component; and

pulsing the pulsed laser system, through use of a processor, so as to cause the laser source to micro-machine the trimmable component on the workpiece, with the selected time interval between the at least two successive transmissions of pulses onto the workpiece, while the pre-selected pulse energy characteristic remains as preset regardless of the time interval, without selection of the time interval affecting the pulse energy characteristic.

110. (previously withdrawn) The trimmed component of claim 109 wherein in the method of operating the pulsed laser system the energy characteristic is a pulse width long enough that the trimmable component is cut through to the bottom of the trimmable component while substantial lateral heat conduction is avoided, whereby microcracking is avoided.

111. (previously withdrawn) The trimmed component of claim 109 wherein in the method of operating the pulsed laser system the laser source is a continuously pumped laser source and wherein the laser system comprises a switch configured to be closed to cause energy

to be stored by the laser source for a desired period of time, and to be opened to allow energy to be emitted from the laser source during an emission period.

Please add new claims 112 – as follows

112. (new) A processor-controlled pulsed laser system comprising:

a laser pump that provides pump energy;

a laser rod for receiving the pump energy;

a reflector interposed between the laser pump and the laser rod, through which the pump energy from the laser pump enters the laser rod;

an output reflector through which emission energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to cause pump energy to be stored in the laser rod for a desired period of time when the switch is in a first position, and to allow emission energy to be emitted from the laser rod and directed toward a trimmable component at a first time interval at the first pulse energy when the switch is in a second position;

selection means for permitting selection of a second time interval at which emission energy will be directed toward a trimmable component, said second time interval being different than the first time interval; and

adjustment means for providing that emission energy is directed toward the trimmable component at the second time interval at the first pulse energy.

113. (new) The processor-controlled pulsed laser system as claimed in claim 112, wherein said adjustment means includes a diverter unit that diverts unwanted energy away from

the trimmable component.

114. (new) The processor-controlled pulsed laser system as claimed in claim 113, wherein said diverter unit diverts secondary pulses away from the trimmable component.

115. (new) The processor-controlled pulsed laser system as claimed in claim 113, wherein said diverter unit diverts primary pulses toward the trimmable component.

116 (new) The processor-controlled pulsed laser system as claimed in claim 112, wherein said adjustment means includes an acousto-optic modulator.

117. (new) The processor-controlled pulsed laser system as claimed in claim 112, wherein said laser pump provides continuous fixed pump energy at said first and second time intervals.

118. (new) The processor-controlled pulsed laser system as claimed in claim 112, wherein said switch that is interposed between the laser rod and the output reflector is in the first position to cause pump energy to be stored in the laser rod for a first period of time during operation at the first time interval, and is in the first position to cause pump energy to be stored in the laser rod for the first period of time during operation at the second time interval.

119. (new) The processor-controlled pulsed laser system as claimed in claim 112, wherein the switch that is interposed between the laser rod and the output reflector is in the

second position to allow emission energy to be emitted from the laser during a first emission period during operation at the first time interval, and is in the second position to allow emission energy to be emitted from the laser during a second emission period during operation at the second time interval.

120. (new) A processor-controlled pulsed laser system comprising:

a laser pump that provides pump energy;

a laser rod for receiving the pump energy;

a reflector interposed between the laser pump and the laser rod, through which the pump energy from the laser pump enters the laser rod;

an output reflector through which emission energy is emitted from the laser rod;

a switch interposed between the laser rod and the output reflector configured to cause pump energy to be stored in the laser rod for a first period of time when the switch is in a first position, and to allow emission energy to be emitted from the laser rod and toward a trimmable component at a first time interval when the switch is in a second position;

selection means for permitting a second time interval to be selected at which emission energy will be directed toward a trimmable component, said second time interval being different that the first time interval; and

adjustment means for providing that the first period of time that the switch is in the first position remains the same during operation at the second time interval.

121. (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein said adjustment means includes a diverter unit that diverts unwanted energy away from

the trimmable component.

122. (new) The processor-controlled pulsed laser system as claimed in claim 121, wherein said diverter unit diverts secondary pulses away from the trimmable component.

123. (new) The processor-controlled pulsed laser system as claimed in claim 121, wherein said diverter unit diverts primary pulses toward the trimmable component.

124 (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein said adjustment means includes an acousto-optic modulator.

125. (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein said laser pump provides continuous fixed pump energy at said first and second time intervals.

126. (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein emission energy is provided to the trimmable component with a first pulse shape at both the first and second time intervals.

127. (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein emission energy is provided to the trimmable component with a first pulse width at both the first and second time intervals.

128. (new) The processor-controlled pulsed laser system as claimed in claim 120, wherein emission energy is provided to the trimmable component with a first pulse energy at both the first and second time intervals.